

Wisconsin Commercial Buildings Plan Review HVAC Worksheets

OUTDOOR AIR VENTILATION WORKSHEET

ROOM OR SPACE DESIGNATION	OCCUPANCY CLASSIFICATION	FLOOR AREA (square feet)	DENSITY PERSONS/1000 SF	OCCUPANT LOAD BY CALCULATION	VENTILATION CFM NEEDED

Minimum required outdoor air ventilation for _____ air handling appliance is _____ CFM.

COMBUSTION AIR SIZING WORKSHEET

- 1) Is this heating appliance to be fueled by gas, liquid, or solid fuel? _____
- 2) Is the room where the heating appliance is located within this building “Unusually Tight Construction” [see COMM 65.0201(1) for definition]? _____ (YES or NO)
- 3) Is the appliance location in a confined space? _____ (YES or NO)
- 4) Combustion air for this appliance is to be drawn from which of the following?
_____ Outdoor air only.
_____ Indoor air only.
_____ Combination of indoor and outdoor air.
- 5) Rated input maximum capacity of this appliance is: _____ Btu/hour
- 6) Aggregate input of **all** appliances in the room or space is: _____ Btu/hour
- 7) Volume of the room in which this appliance is placed is: _____ cubic feet
Length = _____ Width = _____ Height = _____
- 8) Do any exhaust systems present affect the combustion air supply? _____ (YES or NO)
- 9) Are ducts used to provide combustion air to appliances? _____ (YES or NO)
If **YES**, are ducts horizontal or vertical? _____
- 10) List the distance down from the ceiling to top of the highest opening: _____ List the distance up from the floor to the bottom of the lowest opening: _____
- 11) The minimum free area of combustion air opening required by my design for this appliance is: (check applicable one)
_____ 1 square inch per 1000 Btu/hour _____ 1 square inch per 2000 Btu/hour
_____ 1 square inch per 2400 Btu/hour _____ 1 square inch per 3000 Btu/hour
_____ 1 square inch per 4000 Btu/hour _____ 1 square inch per 5000 Btu/hour
- 12) Do louvers or grills affect the free area of ducts or openings used to supply combustion air to the appliances? _____ (YES or NO)
- 13) Appliances, except by limited exceptions, are **not permitted** to be **located in or to obtain combustion air from** the following rooms or spaces: sleeping rooms, toilet rooms, bathrooms, storage closets, and surgical rooms. Does the proposed appliance location meet this IMC 303.3 & IFGC 303.3 prohibition? _____ (YES or NO)

If **NO**, are any exceptions of IMC or IFGC Section 303.3 met? _____ (YES or NO)

Submit all calculations of sizing of combustion air ducts or grills/louvered openings to be used.



Transaction ID #	Submitter's Name		
Owner's Name	Date		
Building Location (Number & Street)	City	Village	Township of

☐ Check here if using System Analysis Design (see IECC 402/Comm 63.1070/IECC 806)

	Basic Requirements Checklist	Additional Data
Design	<input type="checkbox"/> Load calculations involve the use of the minimum interior temperatures of Table Comm 64.0403 for heating and Comm 63.1023(2) for cooling as well as meet or exceed the minimum heating or maximum cooling outdoor design temperatures given in code. Comm 63.1023 & 64.0403	HVAC Prescriptive Worksheet (H-2)
	<input type="checkbox"/> Equipment is properly sized. IECC 312.1/Comm 63.1024	
	<input type="checkbox"/> HVAC fan and pumping system motors meet efficiency standards. Comm 63.1032	
	<input type="checkbox"/> Temperature controls are provided as required: one for each HVAC system and individual controls for each thermal zone. IECC 503.3.2/Comm 63.1026/IECC 803.3.3	
	<input type="checkbox"/> Thermostatic controls meet the setpoint adjustment requirements heating down to 55°F, cooling setpoints up to 85°F, and deadbands of 5°F minimum. IECC 503.3.2.2/Comm 63.1026/IECC 803.3.3.2 & 803.3.3.3	
Controls	<input type="checkbox"/> Systems do not reheat, recool or mix air. Comm 63.0803(3)(b) & 63.1027/IECC 803.3.3.6 & 803.3.4	
	<input type="checkbox"/> Variable volume systems to have minimum stops, & adjusted as required. Comm 63.0803(3)(b) & 63.1027/IECC 803.3.3.6 & 803.3.4	
	<input type="checkbox"/> Each system that does not need to operate continuously is provided with either automatic time or setback/setup controls. Comm 63.1027(3)/IECC 803.3.3.3	
	<input type="checkbox"/> Ventilation supply systems and exhaust systems are provided with either gravity or motorized dampers as required to limit infiltration during off hours. IECC 503.3.3.5/Comm 63.0503(2)(d) & 63.0803(2)(e)/IECC 803.2.7 & 803.3.3.4	
	<input type="checkbox"/> Combustion air dampers provided per IFGC 304.14	
Completion & Construction	<input type="checkbox"/> A humidistat shall be provided if a system is equipped with a means for adding moisture to maintain specific humidity levels in a zone or zones. IECC 503.3.2.4/Comm 63.1028/IECC 803.2.3.2	
	<input type="checkbox"/> Fan cooling systems employ air or water economizer controls. Comm 63.1031/IECC 803.2.6 & 803.3.3.5	
	<input type="checkbox"/> Heat pumps with supplementary heaters have controls to prevent heater operation when heating load can be met by heat pump. IECC 503.3.2.3/Comm 63.1022/IECC 803.3.3.1.1	
	<input type="checkbox"/> Pipe insulation meets the requirements of Comm Table 63.1029 per IECC 503.3.3.1 & 504.5/IECC 803.2.9, 803.3.7 & 804.5. Duct insulation meets the requirements of IECC 503.3.3.3/Comm 63.0803(2)(f)/IECC 803.2.8	
	<input type="checkbox"/> The plans or specifications state the requirements for duct sealing. IECC 503.3.4.2, & 503.3.4.3/Comm 63.0503(2)(c) & 63.0803(2)(e)3/IECC 803.2.8	
	<input type="checkbox"/> Fasten and seal ducts as required IECC 503.3.3.4/Comm 63.0503(2)(c), 63.0803(2)(e)3, 63.1029(4)/IECC 803.2.8	
	<input type="checkbox"/> Complying air and water system balancing procedures are spelled out on the plans or in the specifications. IMC 312/Comm 64.0313	
	<input type="checkbox"/> Testing, adjusting and calibration of control systems is spelled out on the plans or in the specifications Comm 64.0313	
	<input type="checkbox"/> Plans or specifications require that equipment is provided with operation and maintenance manuals and system schematics. IMC 102 & 312/Comm 64.0102.1 & 64.0313	

Special Considerations: ☐ Heat recovery utilized ☐ Continuous system operation required



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Zone Controls - Constant Volume Systems**Comm 63.1027/IECC 803.3.4**

- ☐ Systems have controls which prevent simultaneous heating and cooling including: reheat, recool, mixing of heated and cooled airstreams, and simultaneous heating and cooling by separate systems within a zone.

System or Zone Number or ID**Exceptions**

- ☐ 75% of reheat energy is from site-recovered or solar energy (provide documentation).
- ☐ System serves zones with process-driven humidity requirements.
- ☐ Multiple reheat systems serving multiple zones with controls or dual duct and multizone systems with controls to reset supply
- ☐ Zones with a peak supply of 150 CFM or less or multizone systems with reheating or recooling limited to 5,000 CFM or 20%, whichever is less.

Zone Controls - Variable Volume Systems**Comm 63.1027/IECC 803.3.4.2**

- ☐ Before reheating or mixing of airstreams occur, zone controls must reduce the air supply to a minimum volume which is no greater than the largest of the following: (1) 30% of the peak supply volume, (2) the minimum required to meet ventilation requirements of Comm 64, or (3) 0.4 CFM /ft² of zone conditioned floor area.

System or Zone Number or ID**Exceptions**

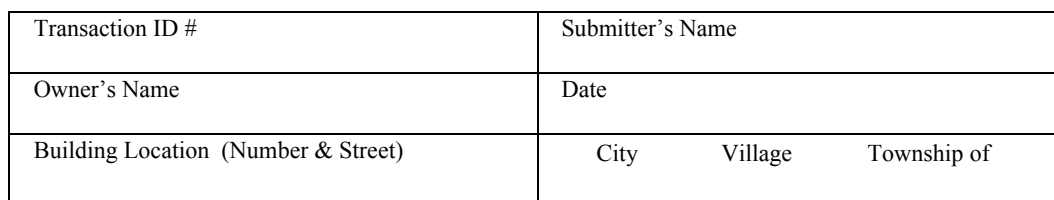
- ☐ There is no reheating or mixing of airstreams in these zones.
- ☐ Pressurization requirements prevent such reduction of airflow (provide documentation).
- ☐ 75% of reheat energy is from site-recovered or solar energy (provide documentation).
- ☐ System serves zones with process-driven humidity requirements.
- ☐ Zones with a peak supply of 150 CFM or less or multizone systems with reheating or recooling limited to 5,000 CFM or 20%, whichever is less.

Economizer Controls - Comm 63.1031/IECC 803.2.6 & 803.3.3.5

- ☐ Fan-cooling systems are equipped with complying air or water economizers.

System Number or ID**Exceptions**

- ☐ System capacity is less than either 2,000 cfm or 62,000 Btu/hr total cooling for a split system or less than 36,000 Btu/hr for all other types.
- ☐ Economizers would not save energy (provide documentation).
- ☐ Benefit of air economizer would be offset by increased energy use for humidity control

[illegible]

Note: Where more than one requirement is made for a single piece of equipment (such as full-load and part-load ratings), provide information on subsequent lines.